A Web Based Interface to Childhood Immunization Registries

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Missed opportunities and site restrictions have been identified as significant barriers to on time vaccination of children [1]. A "missed opportunity" occurs when a child sees a health care provider, but is not brought up to date. A "site restriction" is a limitation on where parents can have their children immunized. The inaccessibility of vaccination information across institutions contributes to both of these barriers [2].

We have developed a WorldWide Web (WWW) interface to a simulated immunizations registry. A health institution that uses our interface can reduce the technical effort required to make their vaccination records accessible to authorized clinicians in the region. An authorized clinician does not need to have access to a specific hardware platform, operating system, or special purpose application – he just needs a WWW browser. Furthermore, our interface can be integrated into a more comprehensive, web based interface to a hospital or clinic information system. For example, in our demonstration, the vaccination information is displayed as just another page in a larger web based medical record.

We wrote a program to generate the registry for a small set of patients by starting with the recommended schedule, and making deviations from it at random. These records were put into an Oracle database. Our web server uses CGI scripts written in oraperl to access the immunization information stored in the database.

The presentation features of commonly available web browsers have allowed us to create an intuitive interface to the immunization record. First, the immunization status is summarized, and put into the same format used to concisely represent the standard recommended schedule [3]. Missing and unexpected vaccinations are clearly indicated with a question mark. Then, details like manufacturer and lot number are provided using the standard form described in [4]. Clinicians can enter new vaccinations into the standard form. Vaccine Information Sheets and some technical reference materials are immediately accessible online.

We are in the process of adding other components of an immunization registry to our system. For example, a clinician will be able to generate lists of patients that are overdue for vaccinations, and print out forms required in order to enter school.

In the long term, we want to piece together overall immunizations records from information stored in different institutional registries. We feel that this is a good proving ground for the W3-EMRS architecture, described in [5], developed to handle the larger problem of sharing medical information across multiple institutions.

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References

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